

FIG. 1

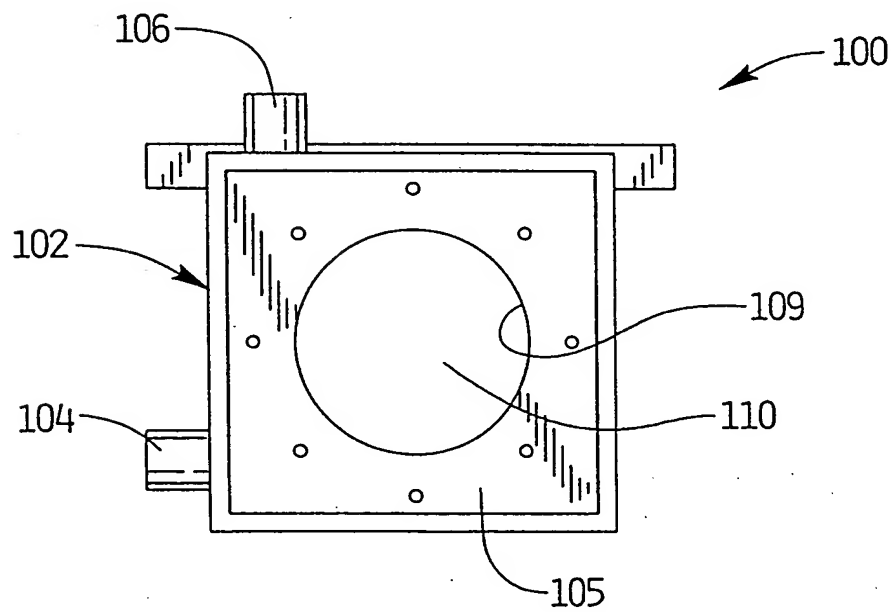
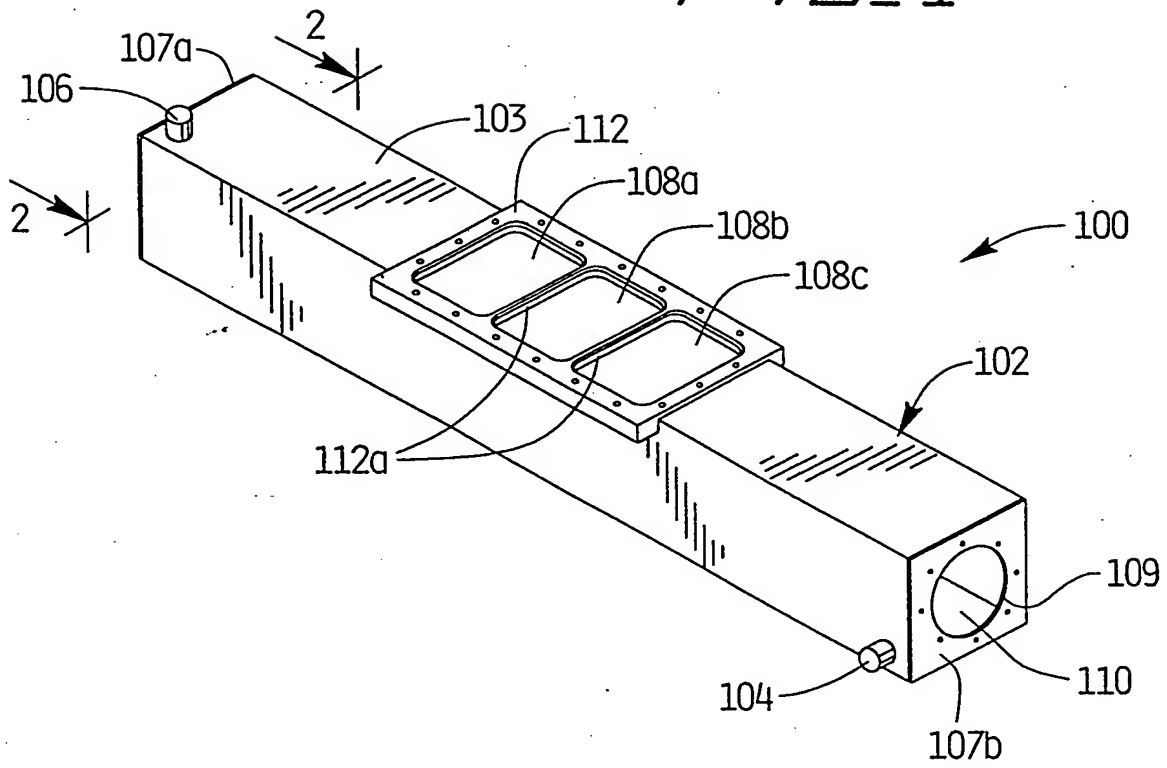


FIG. 2

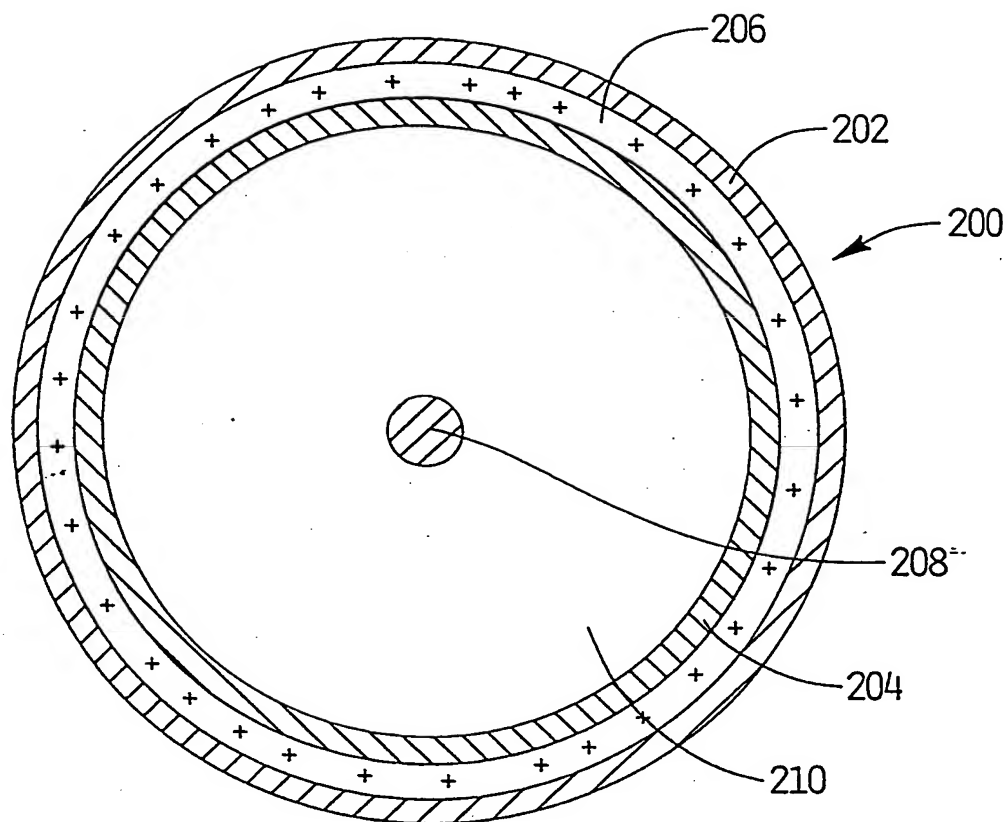


FIG. 3

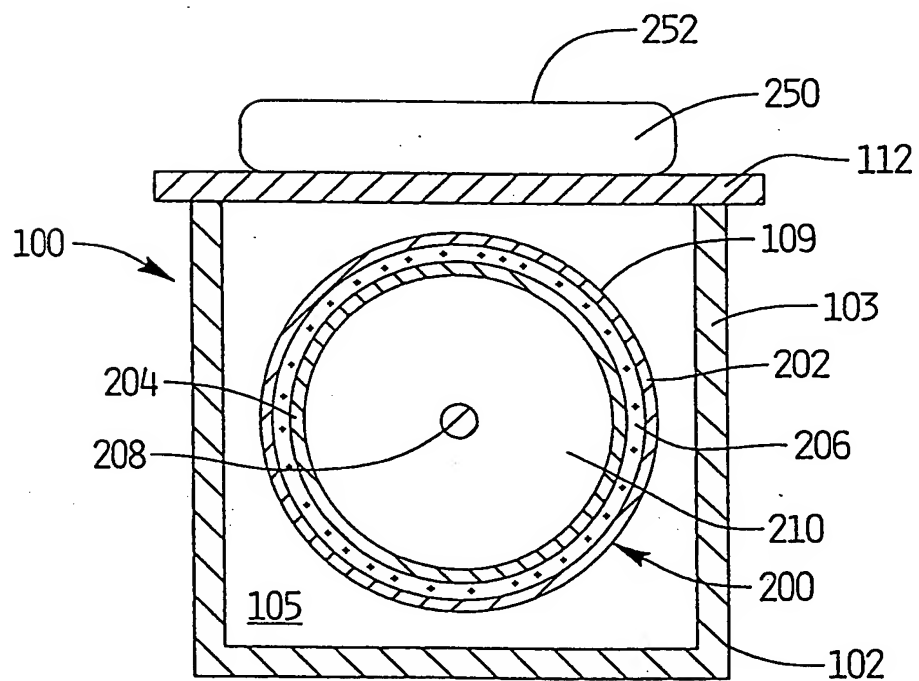


FIG. 4

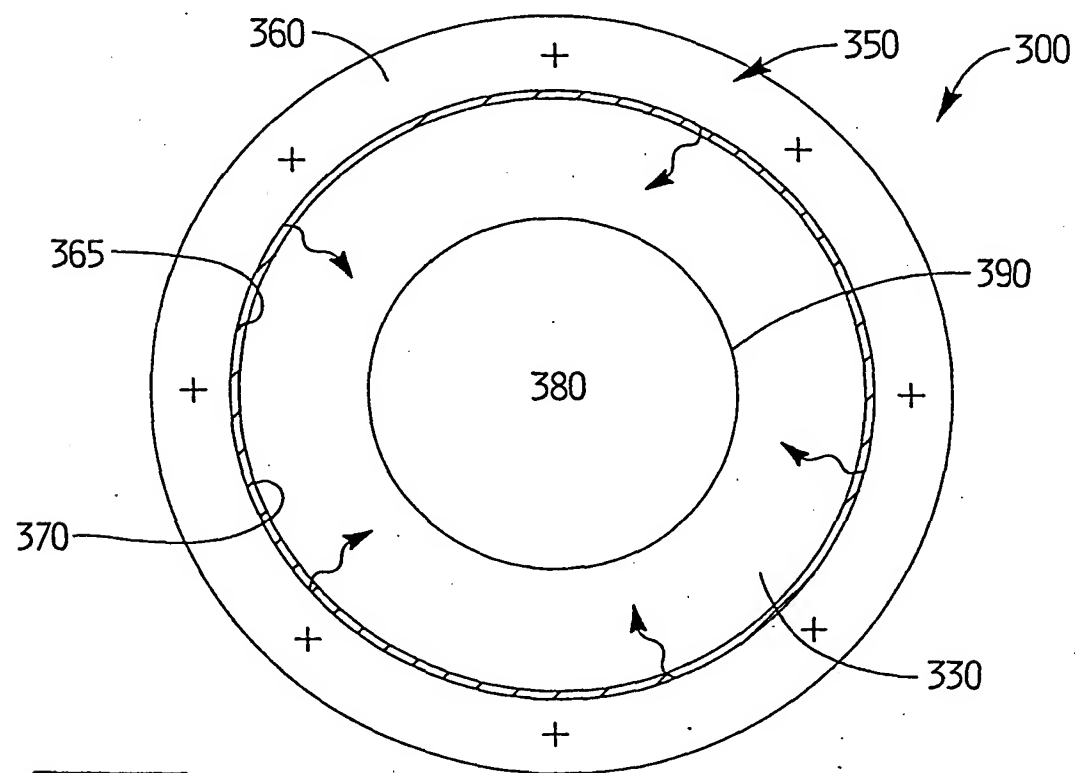
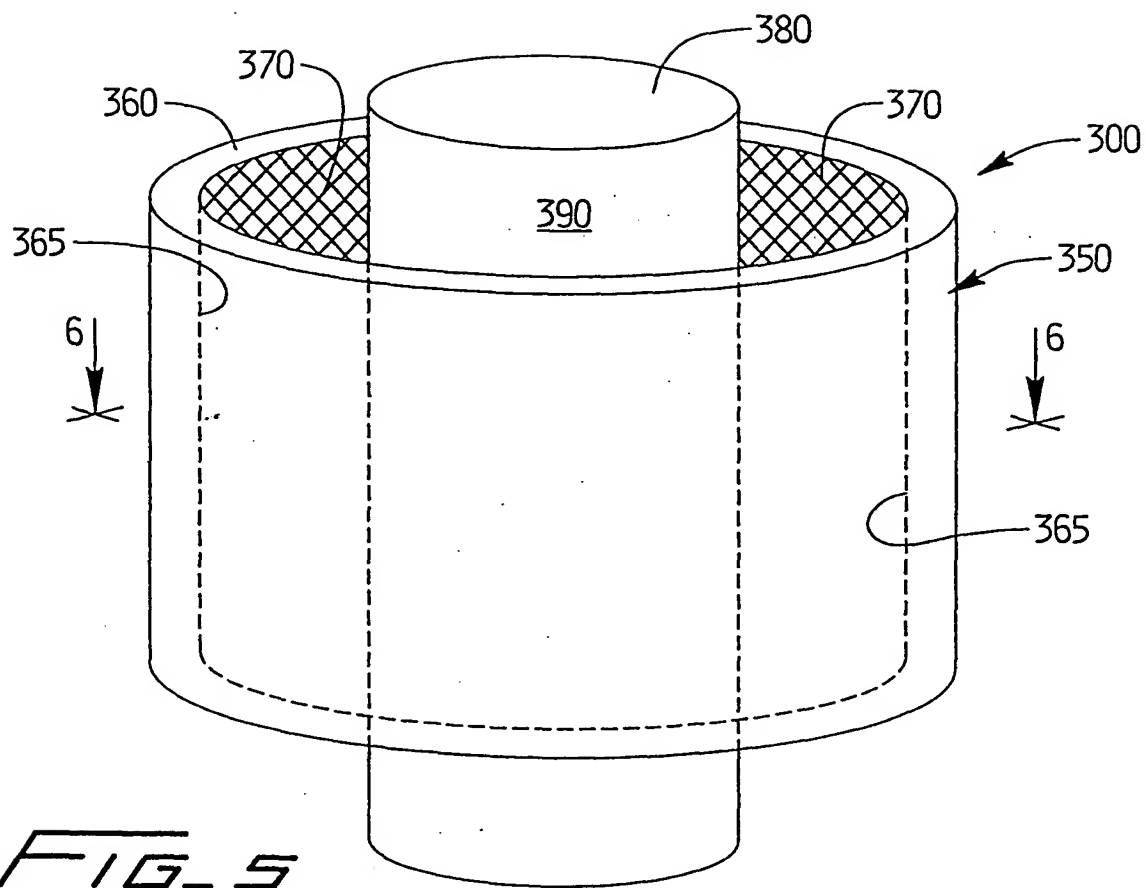


FIG. 7

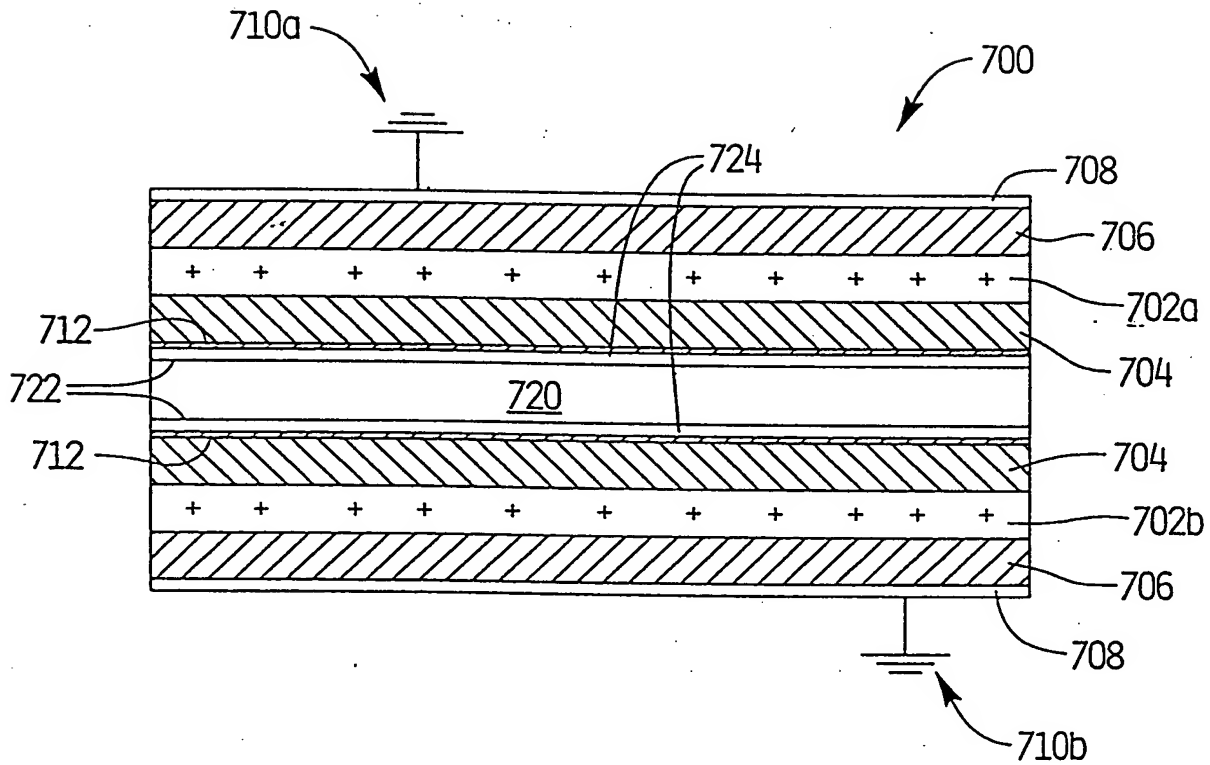


FIG. 8

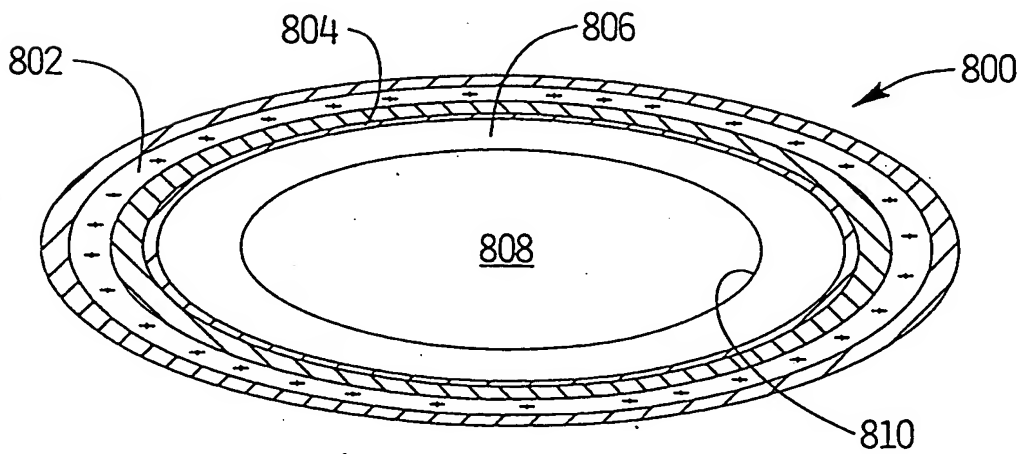
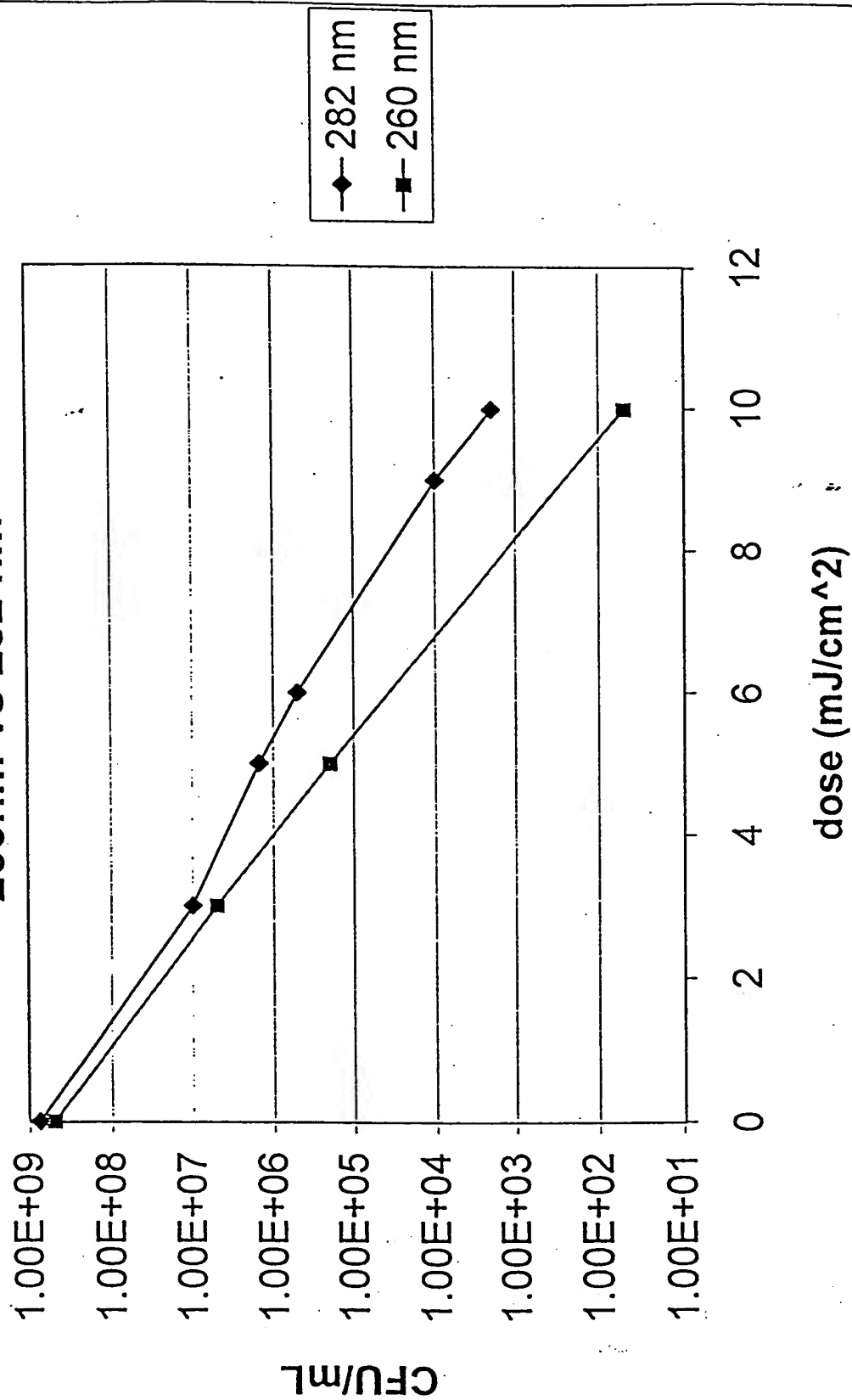
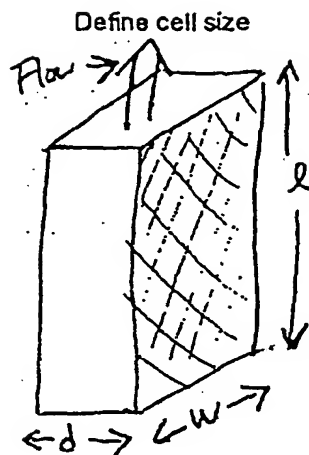


Figure 9
e-coli dose response
260nm vs 282 nm





Set flow rate

$$\text{depth} := 1 \cdot \text{mm}$$

$$\text{length} := 15 \cdot \text{cm}$$

$$\text{width} := 3 \cdot \text{cm}$$

$$\text{CrossArea} := 2 \cdot \text{length} \cdot \text{width}$$

$$\text{Vol} := \text{length} \cdot \text{width} \cdot \text{depth}$$

$$\text{CrossArea} = 90 \text{ cm}^2$$

$$\text{Vol} = 4.5 \text{ cm}^3$$

FIG. 10a

$$\text{Duration} = 78 \text{ s}$$

Duration is time required to treat a unit of platelets

Calculate residence time

$$\text{TIME} := \frac{\text{Vol}}{\text{TARGET}}$$

$$\text{TIME} = 5.4 \text{ s}$$

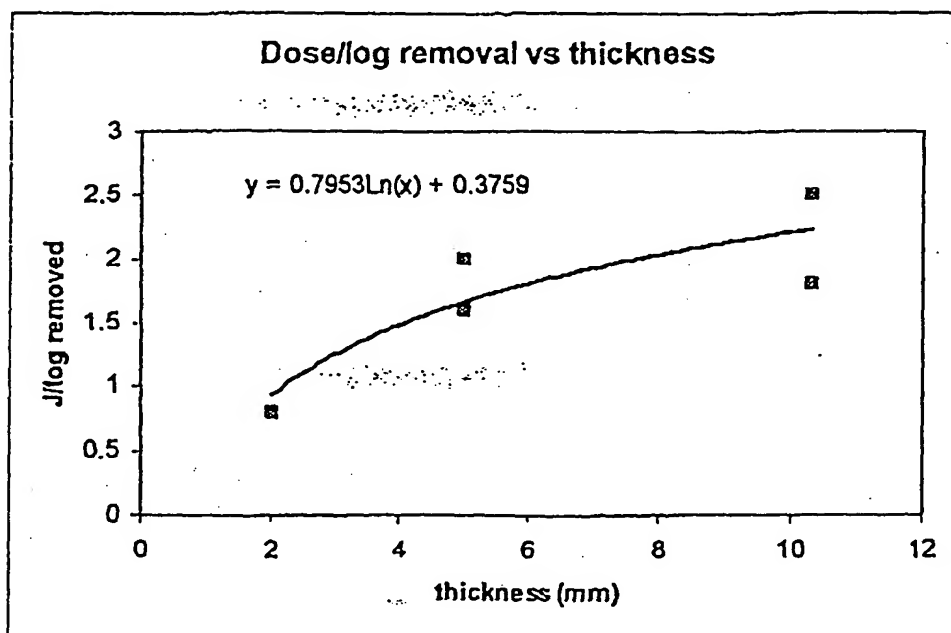
Set "surface" dose

$$\text{SDose} := \frac{\text{depth}}{(2 \text{ mm})} \cdot \frac{J}{\text{cm}^2}$$

Linear fit for small gaps

$$\text{SDose} = 0.5 \frac{J}{\text{cm}^2}$$

The "Surface Dose" is based on measurements of parvo reduction as a function of platelet (and plasma) thickness.



Set lamp intensity

$$\text{POWERden} := \frac{\text{SDose}}{\text{TIME} \cdot 2}$$

$$\text{POWERden} = 0.046 \frac{\text{W}}{\text{cm}^2}$$

Compare this
intensity with other
lamps

$$\text{Hemalight} := 0.020 \frac{\text{W}}{\text{cm}^2}$$

$$\frac{\text{POWERden}}{\text{Hemalight}} = 2.315$$

$$\text{Fluor} := 0.008 \frac{\text{W}}{\text{cm}^2}$$

$$\frac{\text{POWERden}}{\text{Fluor}} = 5.787$$

Calculate electrical parameters

$$\text{ElectricalDensity} := \frac{\text{POWERden}}{0.15}$$

$$\text{ElectricalDensity} = 0.309 \frac{\text{W}}{\text{cm}^2}$$

Assume 15% efficeincy

Calculate lamp power

$$\text{TotPOWER} := \text{POWERden} \cdot \text{CrossArea} \cdot 2$$

$$\text{TotELEC} := \text{ElectricalDensity} \cdot \text{CrossArea} \cdot 2$$

$$\text{TotPOWER} = 8.333 \text{ W}$$

$$\text{TotELEC} = 55.556 \text{ W}$$

FIG. 106

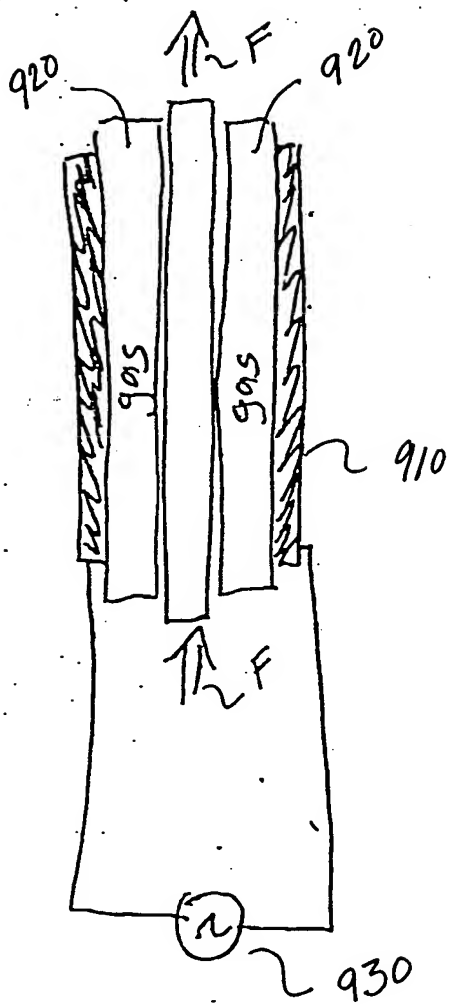


FIG. 11a

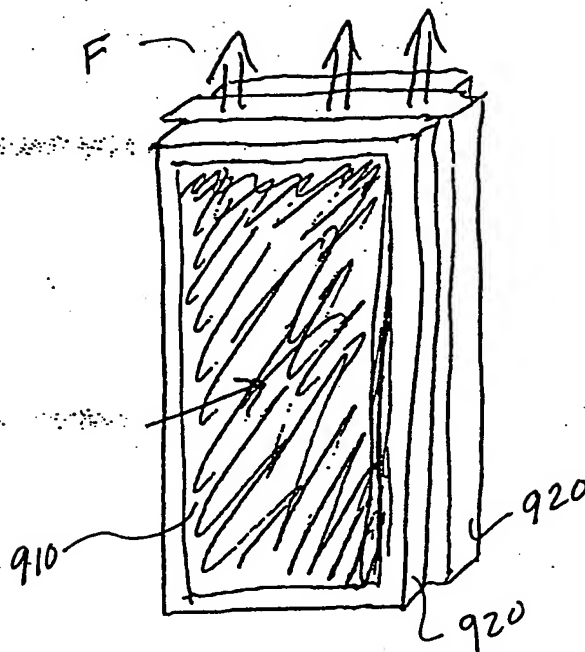


FIG. 11b

Inactivation of PPV
100% Fresh Frozen Plasma (5mm thick)

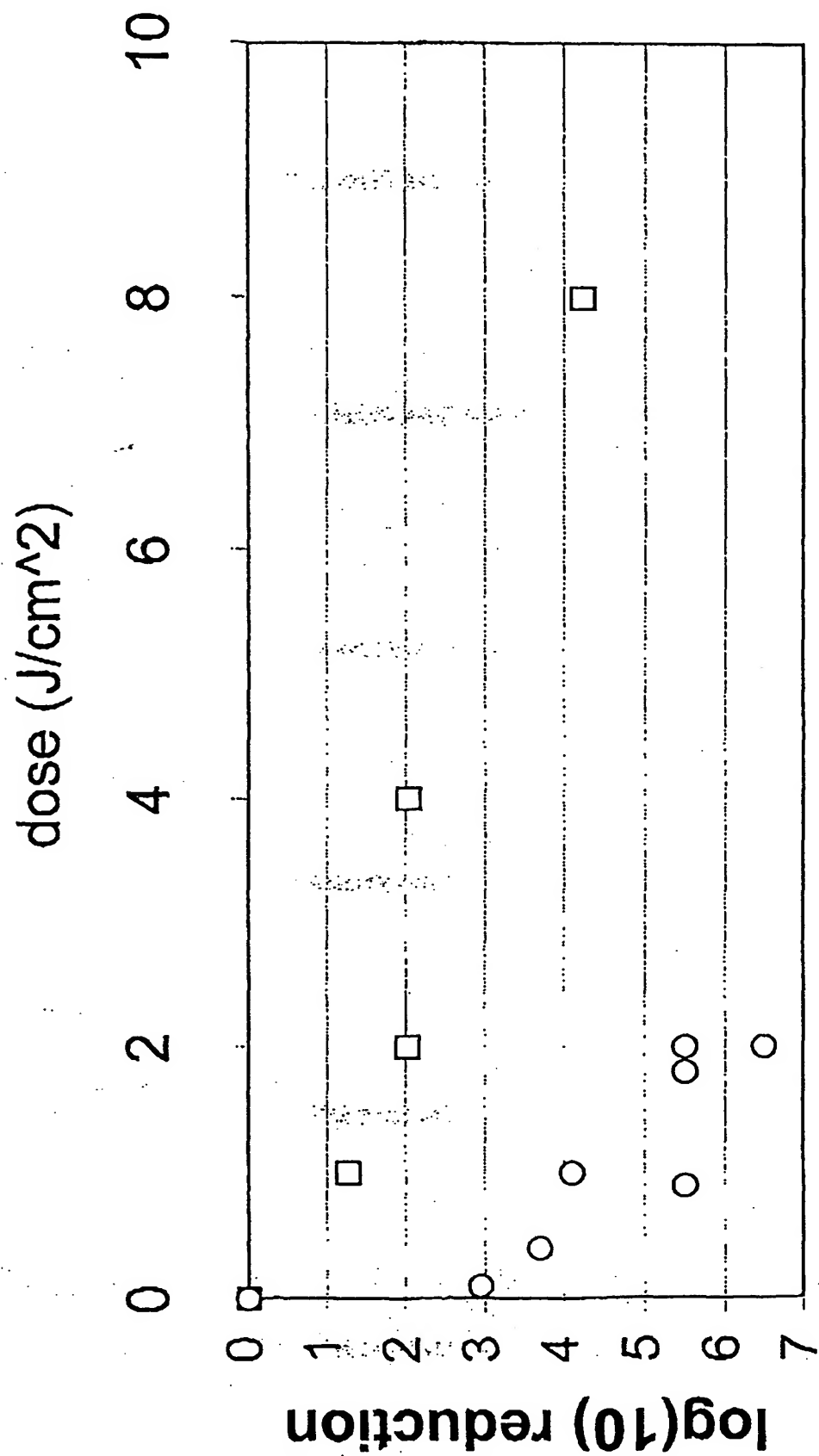


FIG. 12a

**Inactivation of PPV
Platelet Concentrate (RDP) (2 mm thick)**

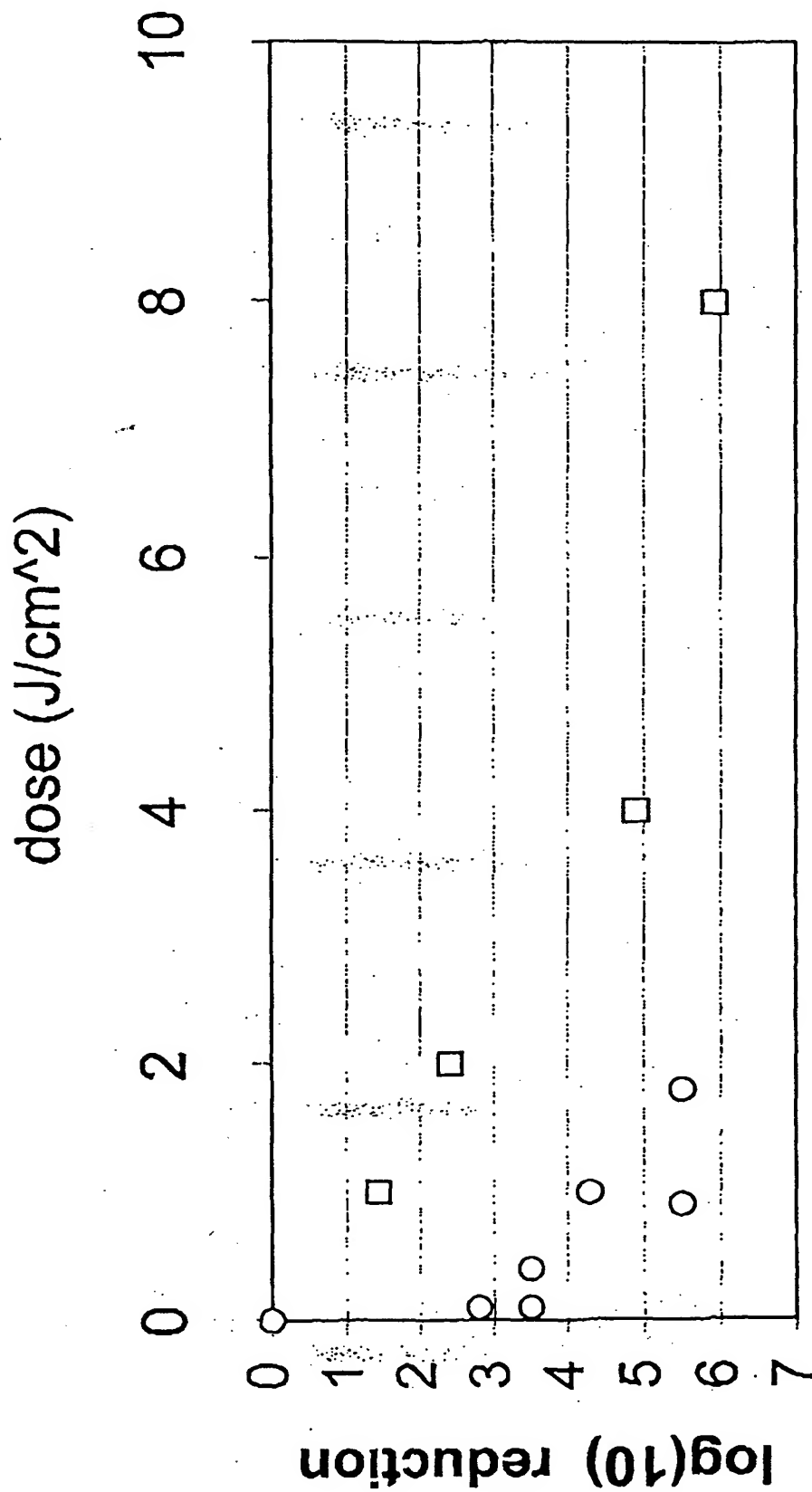


FIG. 12b

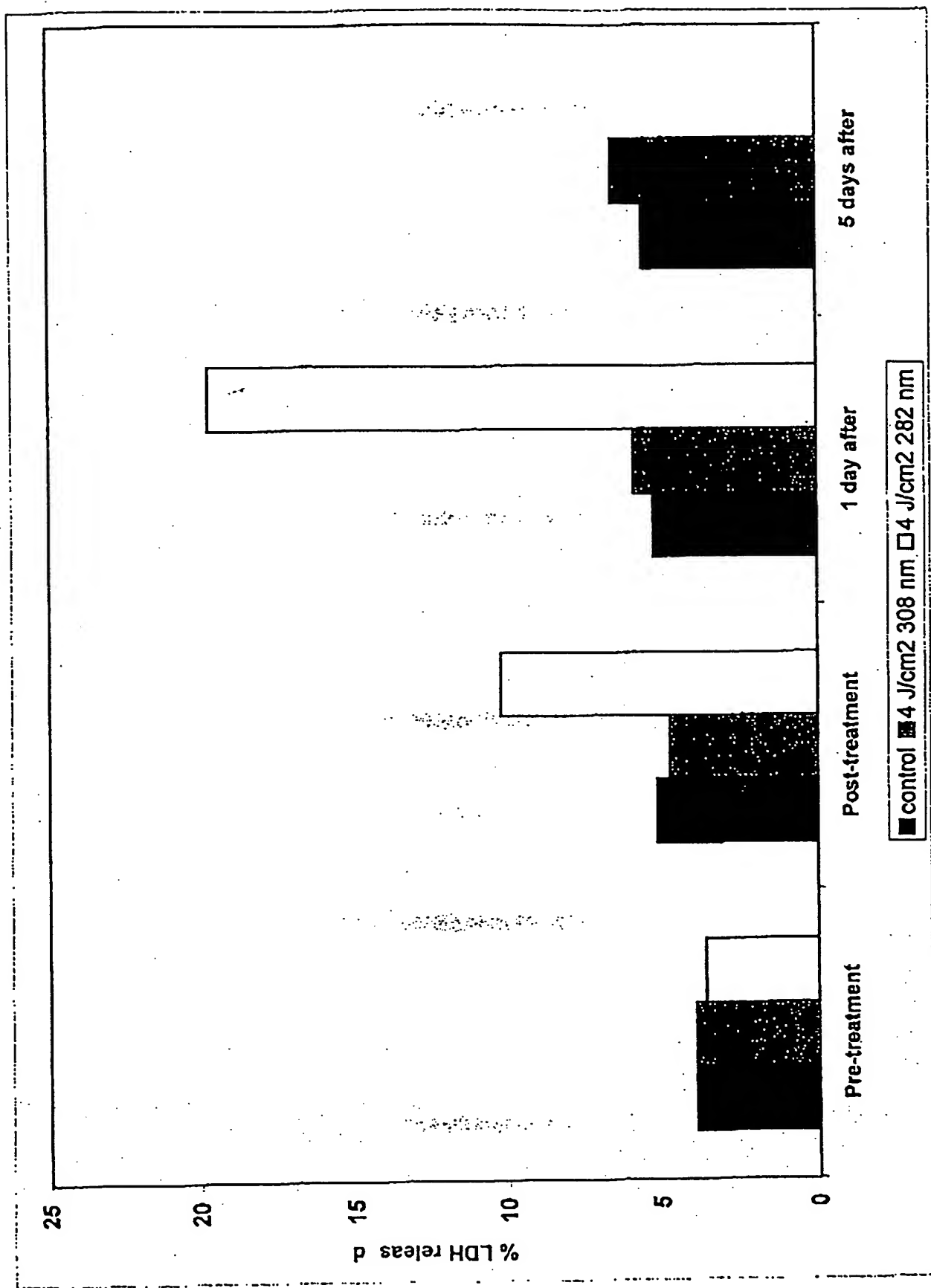


FIG. 13